depending upon locality and food-plant exposure. Pupation occurs immediately after larval development, the pupae entering diapause until the following May, June, or July. The egg, larval, and pupal stages are described and illustrated.

Literature Cited

Comstock, J. A., and C. Coolidge. 1930. The life history of *Philotes sonorensis* Felder. Bull. So. Calif. Acad. Sci., 29 (1): 17–21.

Comstock, J. A., and C. M. Dammers. 1932. The metamorphosis of six California Lepidoptera. Bull. So. Calif. Acad. Sci., 31 (3): 88–100.

Downey, J. C. 1962. Myrmecophily in *Plebejus* (*Icaricia*) *icarioides* (Lepid.: Lycaenidae). Entomol. News, 73 (3): 57–66.

Langston, R. L. 1964. *Philotes* of central coastal California (Lycaenidae). Jour. Lepid. Soc., 17 (4): 201–223.

1965. Distribution and hosts of five *Philotes* in California (Lycaenidae). Jour. Lepid. Soc., 19 (2): 95–102.

A new *Phytomyza* species from California

(Diptera : Agromyzidae)

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Frick (1959: 436) identified as *Phytomyza sphondylii* Robineau-Desvoidy (cf. Hendel, 1931–1936: 483) a species he had bred from leaf mines on *Heracleum lanatum* Michx. in California. I have recently examined a series of this species from Strawberry Canyon, Berkeley Hills, Alameda County, California, reared by M. J. Tauber and C. A. Toschi and although it very closely resembles *P. sphondylii* from Europe morphologically, comparison of the male genitalia with those of a reared male of *P. sphondylii* shows immediately that it represents a new species which can be briefly described as follows:

Phytomyza lanati Spencer, new species

Head. Frons broad, at least twice width of eye, not projecting above eye in profile; one strong upper orbital bristle, dorsal bristle substantially weaker, reduced to a minute setula or entirely lacking; two lower orbitals, the dorsal one strong, the ventral significantly weaker; jowls broad, one-third vertical height of eye, deepest at rear, frequently rounded in lower corner rather than angular; third antennal segment rounded, without conspicuous pubescence. *Mesonotum*: Four strong dorsocentrals, acrostichals irregularly in four rows in front, normally reduced to two rows at rear, ending between first and second dorsocentrals. *Wing*:

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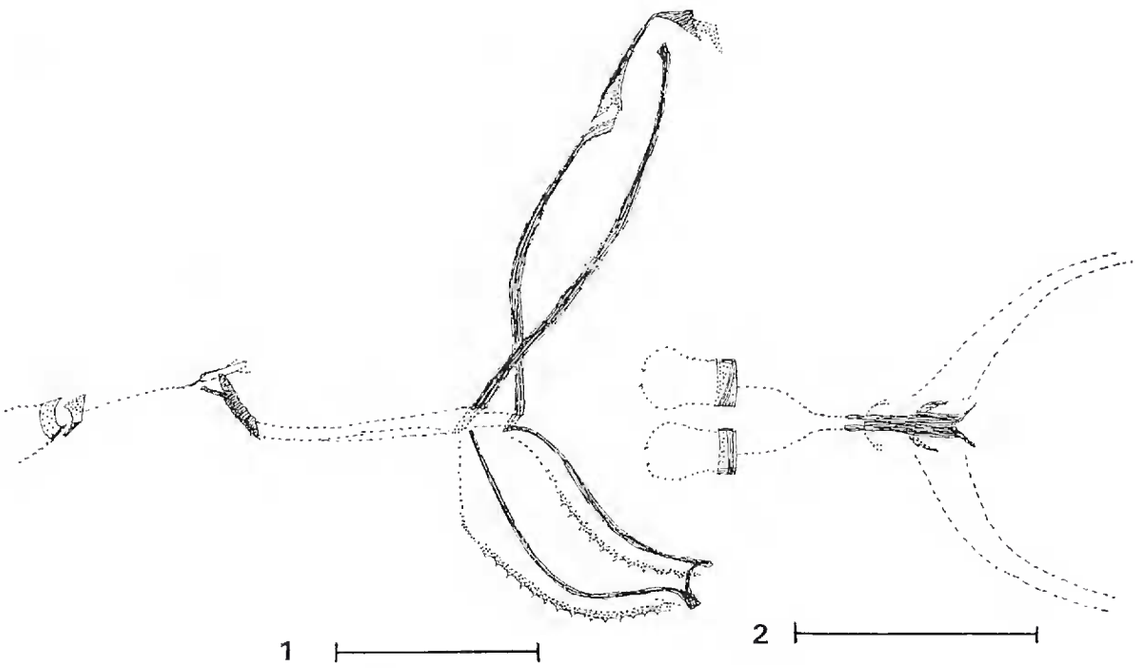

Fig. 1–2. *Phytomyza lanati:* 1, aedeagus, side view; 2, distiphallus, dorsal view. (Scale line = 0.1 mm.)

Length in male from 2.6 mm, in female up to 3.5 mm; second costal segment long, 4 to 4.5 times length of fourth; typical ratio of second, third, and fourth segments is 50:11:12. *Color*: Frons and jowls orange–yellow; hindmargin of eye entirely black, with both vertical bristles on black backgound; black may extend along orbits adjoining eye margin or at least basal pits of orbital bristles are darkened; face black centrally, possibly more yellow laterally; palps and antennae black; mesonotum and scutellum blackish gray, pruinose, anepisternum (mesopleuron) black below, distinctly yellow along upper margin; humerus and notopleural area variable, either largely black or in paler specimens distinctly yellowish; legs: black, with knees of forefemora yellow and of mid- and hindfemora only faintly yellowish; squamae pale, yellowish, fringe darker, ochreous or brown. *Male genitalia*: Aedeagus distinctive, as in Figs. 1, 2.

Holotype male.—CALIFORNIA, STRAWBERRY CANYON, BERKELEY HILLS, reared from *Heracleum lanatum*, 7 June 1964. *Paratypes.*—Six males, 11 females, March to June 1964 (all Tauber and Toschi). Holotype and paratypes in U. S. National Museum, Washington, further paratypes in California Academy of Science, San Francisco, and author's collection.

P. lanati appears to be virtually identical with *P. sphondylii* on external characters but is distinctly larger; the wing length of *P. sphondylii* is given by Hendel as 2–2.5 mm, whereas in the series of *P. lanati* I have examined the size range is from 2.6–3.5 mm. Frick's misidentification was thus entirely understandable, at a time when the genitalia of the Agromyzidae were largely unknown.

In Frick's (1959) key to North American Agromyzidae *P. lanati* runs either to Couplet 15 or 17, according to which alternative is followed in Couplet 12. Pale specimens can be included in a revised Couplet 15, as follows:

15 Anepisternum dorsally one-third to one-half yellow; only one developed upper-orbital seta ..... *P. albiceps*
Anepisternum darker, dorsally not more than one-quarter yellow; dorsal upper-orbital seta at most half length of ventral, more frequently reduced to a mere setula or entirely absent ..... *P. lanati*

Darker specimens, in which the humerus and notopleural area cannot be considered as yellow, can be included in an extension to Couplet 16, as follows: First alternative of Couplet 16, for 17, read 16a; add new couplet:

16a Anepisternum distinctly yellow in upper quarter ..... *P. lanati*
Anepisternum at most narrowly yellow along upper margin 17

P. lanati is readily distinguishable from the other species in Couplet 15, *P. albiceps* Meigen, by the darker anepisternum. Whether the species forming leaf mines on *Artemesia* in North America and identified as *P. albiceps* is in fact the European species clearly requires confirmation from examination of the male genitalia.

The life history of *P. lanati* is being described in detail by Tauber and Toschi (1966). I am grateful to Miss Toschi for sending me this interesting species and for allowing me to describe it. I also wish to thank my wife for preparation of the genitalia drawings.

Literature Cited

Frick, K. E. 1959. Synopsis of the species of Agromyzid leaf-miners described from North America (Diptera). Proc. U. S. Nat. Mus., 108: 347–465.

Hendel, F. 1931–1936. Agromyzidae in Lindner. Flieg, pal. Reg., 6: 1–570.

Tauber, M. J., and C. A. Toschi. 1966. Cyclic activity, behavior and life history of *Phytomyza lanati* Spencer (Agromyzidae). (In manuscript.)